

# A sustainable ATN system for Kirkland

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# International

# We can learn from Europe

CityMobil is a partnership of

1. Universities
2. Cities
3. Industry

## CityMobil2 partners



## Demonstration site candidates and local partners



## Automated transport system suppliers



# We can learn from Mexico

Modutram is a consortium of

1. Universities
2. Government
3. Industry



Sistema Autotrén: tecnología GRT al alcance

**ModuTram**

**LINT**



**CREADERO**



# We can learn from Sweden

## US – Sweden Memorandum of Cooperation



# New urban infrastructure requires multi-sector engagement

1. Universities

2. Cities

3. Industry

Sustainable



# San José asked industry if an ATN system could be powered by solar

- Ensure that the ATN system is built ... utilizing renewable energy
- ... maximize energy efficiency and potentially be powered in whole or part by renewable energy.
- 
- 
- ... and calculating carbon emissions reductions achievable through renewable energy
- 
- 
- evaluate cost/benefits of using renewable energy to offset all or a portion of the energy requirements
- Provide analysis of cost/savings and recommend



A little history ... I went to Mexico in 1992...



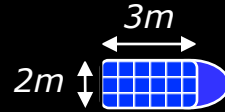
1992

... and raced across the USA & Australia



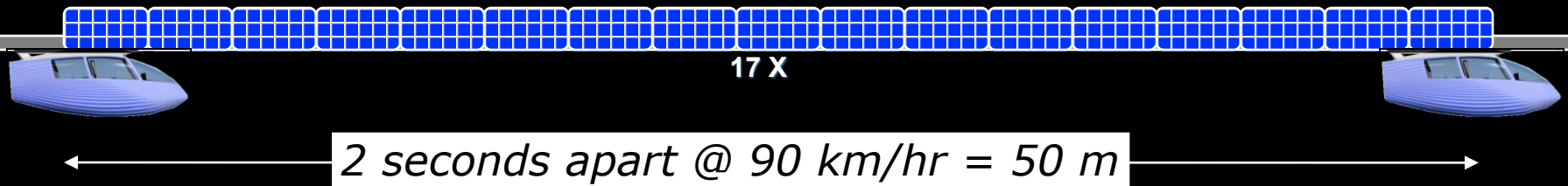
1995

# So let's see if **solar energy** is sufficient to meet SJ's challenge



*Solar Race Car averages 90 km/hr with 6 m<sup>2</sup> solar panel*

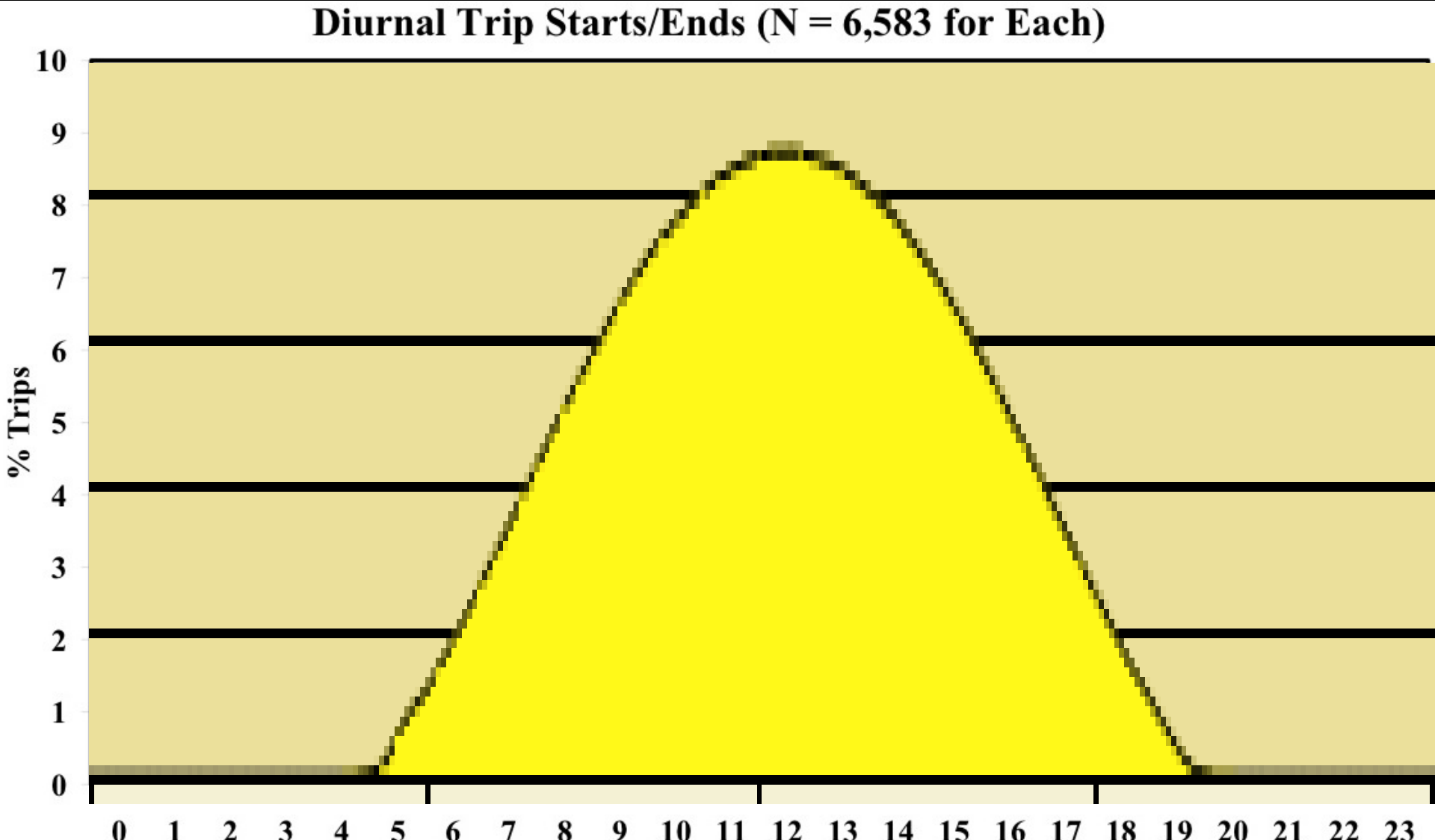
*Knowing it can be done, let's ramp onto the **Solar Skyway** ...*



*... Podcars have  $50\text{ m} \div 3\text{ m} = 17\text{ X}$  more collection area than solar race cars!*

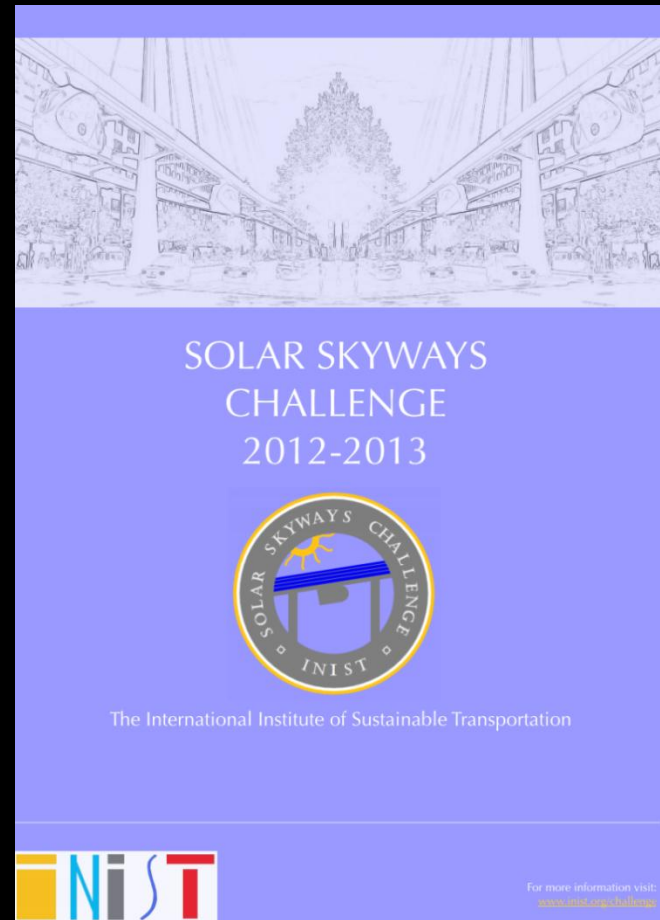


# Typical trip patterns closely match the pattern of sunshine, with evening extension



But if industry can't figure out how to do it, maybe young people can

So INIST issued the  
*Solar Skyways*  
Challenge



2012

# Universities

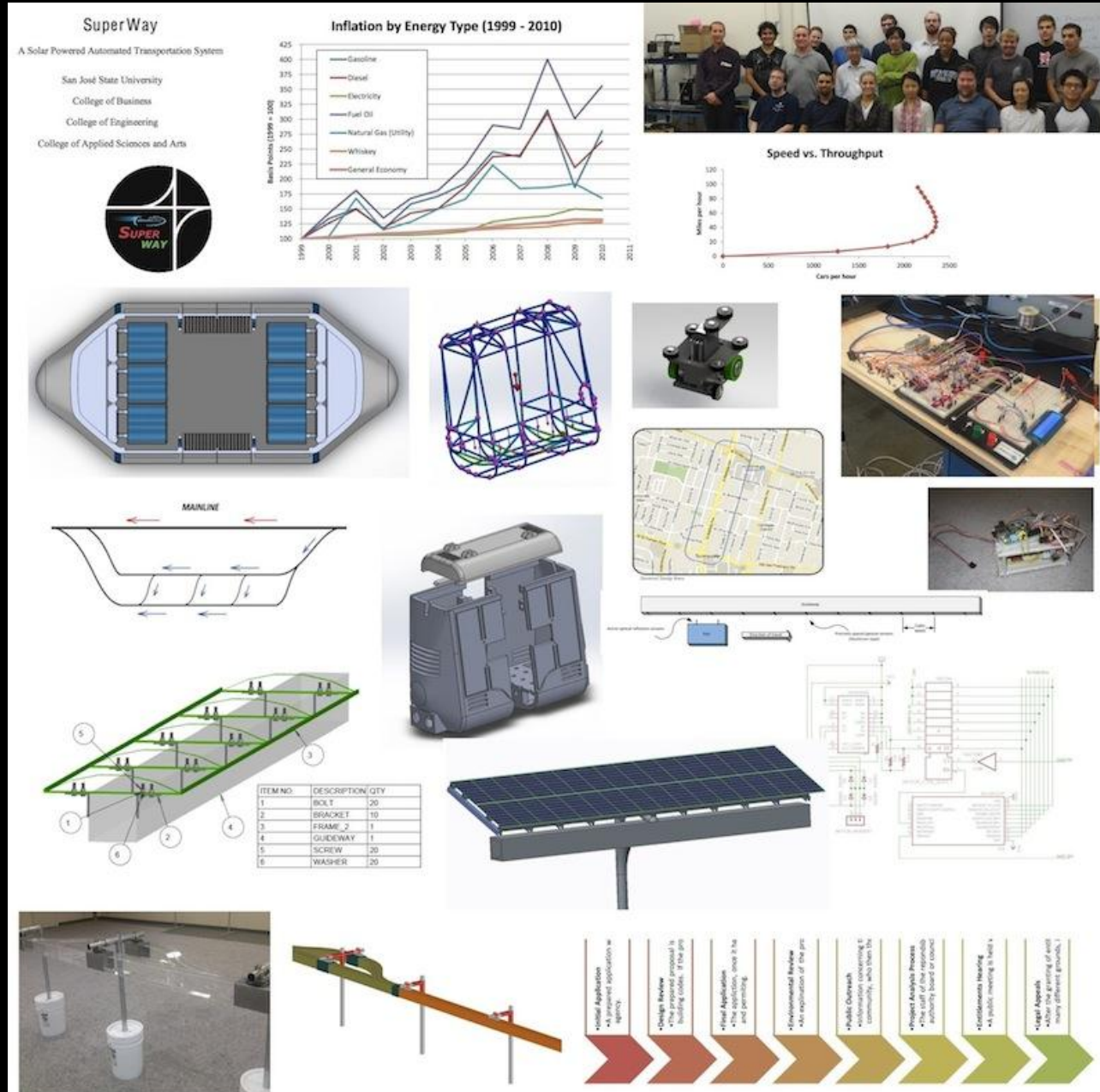
The first student team from Delft University demonstrated the concept by animation



2011



# San José State ME's joined the challenge

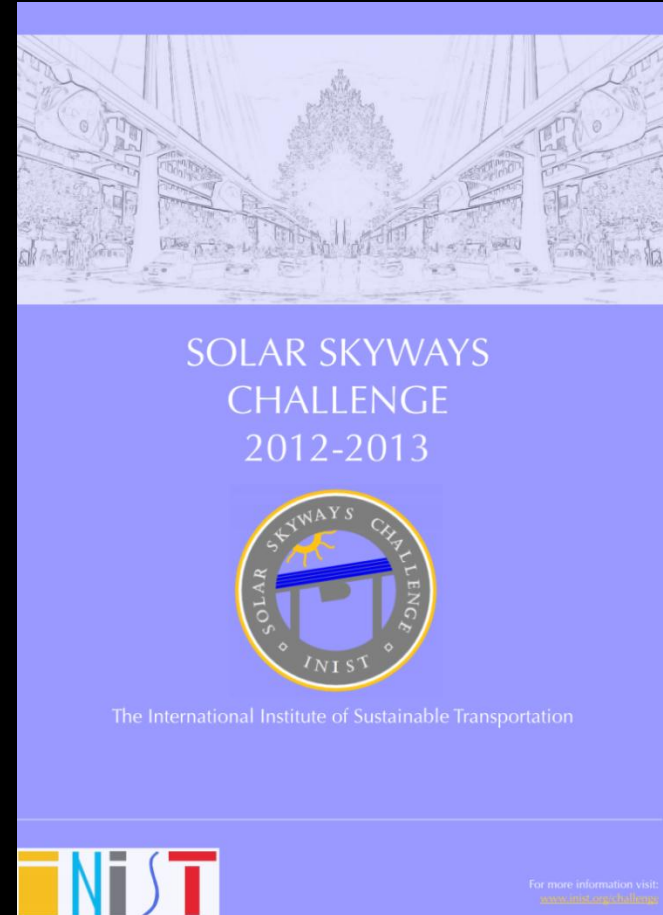


2012

# San José State won the first place \$5k award from INIST



Bryan Burlingame receiving the award  
from Ron Swenson, co-founder of INIST

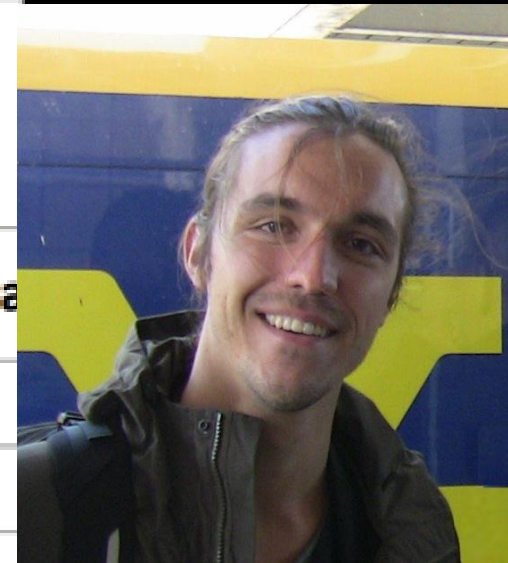
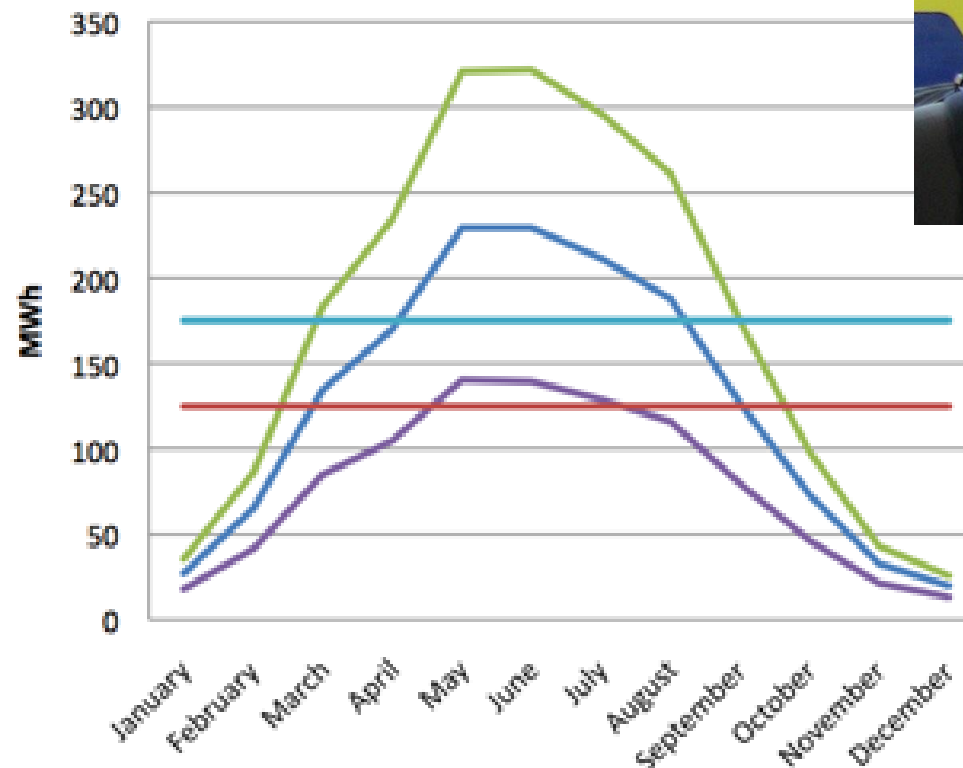


# Uppsala University won second place, designing a solar ATN at 60° North



Early power consumption during the typical day types, high case

Annual System Energy Supply and Demand





# More teams have now joined the challenge



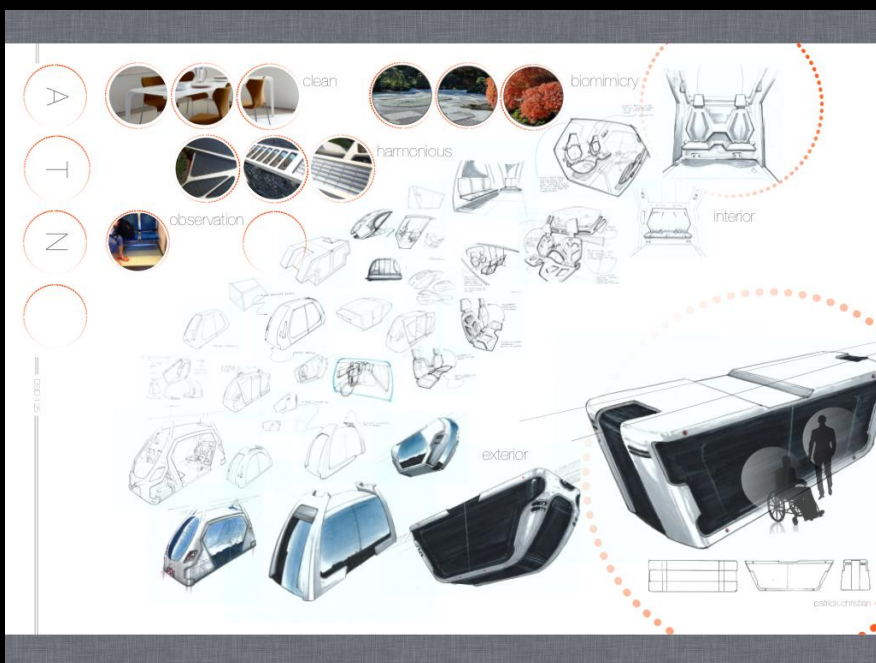
MEET THE TEAM



# SJSU Industrial Design students are thinking outside the transit vehicle 'box'



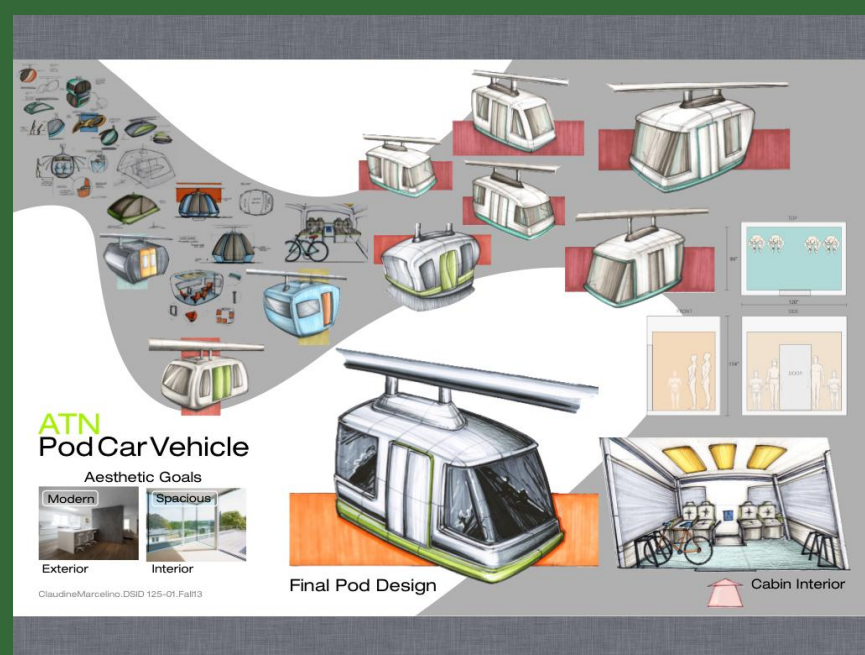




Design



Industrial



# SJSU Human Factors students are innovating the ATN user interface

## Expert Heuristic Analysis

### Navigation: Why

#### Control

There are good elements here. Users can tap on the close icon, anywhere on the screen (outside of the nav), or even swipe to close it.

#### Visibility

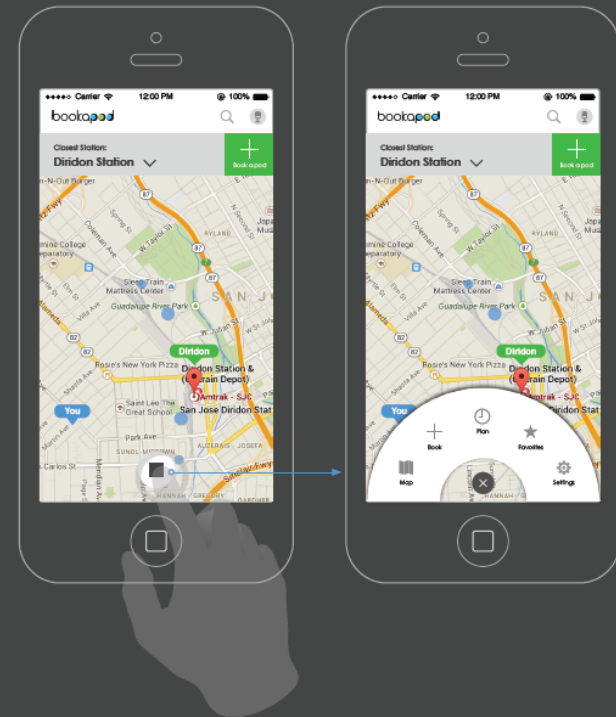
The arch is very visible, and is immediately attended to on tap. This will lead to users finding the information they are searching for quickly.

#### Accessibility

This design caters to both right and left handed users. Properly designed interfaces cater to all types of users.

#### Follows Fitts' Law

This leads to a better user experience because it is easy to locate the primary buttons and options here. The bigger the target is, the easier and quicker it is to reach it. Interfaces that provide large touch targets and adequate spacing are easier to use.





# Cities

# INIST is building a coalition of cities developing ATN

- Cupertino
- Milpitas
- Mountain View
- San Jose
- Santa Clara
- Santa Cruz
- Sunnyvale

ATN Association  
[www.atna.us](http://www.atna.us)

You are welcome  
to join us!

# INIST is training students to create 4D models of ATN networks

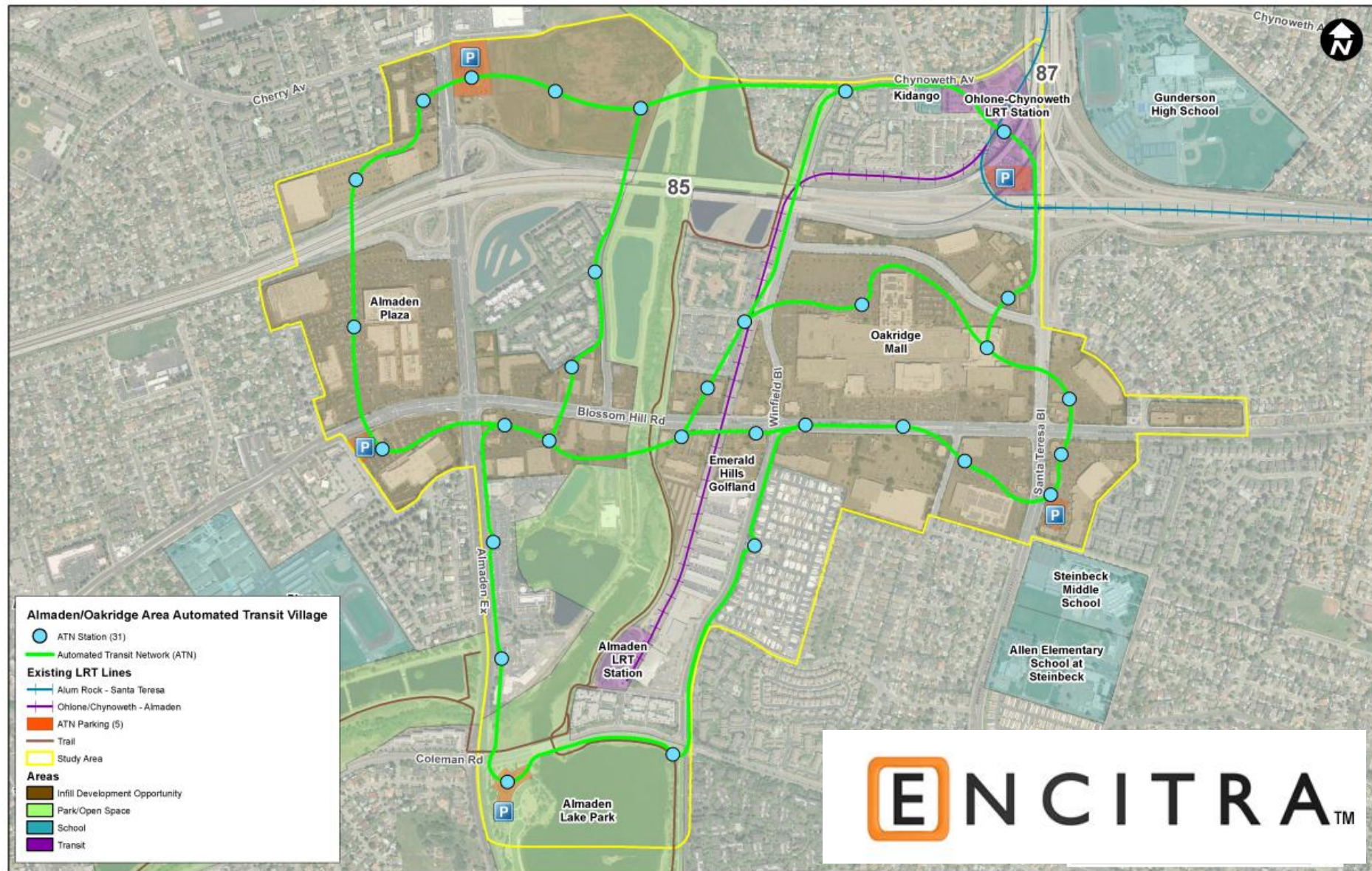


With urban planning  
students and mentors

2014



# In partnership with Encitra ...



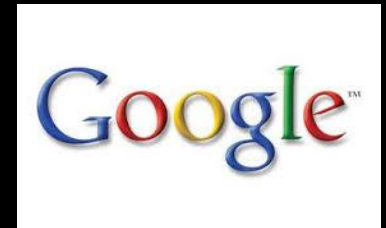


...Urban planning students are creating 4D models for an urban village



# Industry

# Industry is sponsoring and mentoring San José State students





# The academic - industry - city financial relationship is now being defined

MEET THE TEAM



Presidio MBA students are developing the business case for ATNs, based on Public Private Partnerships

We must raise the bar to succeed

10x

# Solar Skyways: More Info

[www.inist.org](http://www.inist.org)

[www.encitra.com](http://www.encitra.com)

[www.podcar.org](http://www.podcar.org)

[www.podcarcity.org](http://www.podcarcity.org)

[www.superway.us](http://www.superway.us)

[www.solarskyways.com](http://www.solarskyways.com)

Thank you!

